

Assessment Schedule – 2009**Mathematics: Determine probabilities (90194)****Evidence Statement**

Question	Achievement	Achievement with Merit	Achievement with Excellence
ONE (a)	$\frac{24}{45}, 0.5333, \frac{8}{15}, 53\%$		
(b)	$\frac{36}{45}, 0.8, \frac{4}{5}, 80\%$		
(c)		$\frac{11}{20} \times 0.7 + \frac{9}{20} \times 0.8$ $\text{or } 11 \times 0.7 = 7.7$ $9 \times 0.8 = 7.2$ $7.7 + 7.2 = 14.9$ $\frac{14.9}{20} = 0.745$ $\text{to get } \frac{15}{20}, \frac{14.5}{19}, \frac{149}{200}, 0.75, 75\%$ <p>Requires clear indication of working.</p>	
(d)		<p>Let g be the probability of germination of plot F</p> $\frac{8}{25} \times 0.7 + \frac{10}{25} \times 0.8 + \frac{7}{25} \times g = \frac{390}{600}$ $0.224 + 0.32 + .28g = 0.65 \quad \text{or}$ <p>Plot D 192 seeds x 0.7 = 134.4 (134) seeds germinate. Plot E 240 seeds x 0.8 = 192 seeds germinate. Plot F 168 seeds x ? = 63.6 (64) seeds germinate.</p> <p>Getting to 0.28g = 0.106 is also M Ie. an indication that for total prob. to = 0.65 Prob for plot F has to be 0.106</p>	$g = \frac{0.65 - 0.544}{0.28}$ $= 0.379$ <p>63.6 (64) / 168 or 0.38 or 8 / 21, 53 / 140</p>
TWO (a)(i)	$\frac{22}{220}, \frac{1}{10}, 0.1, 10\%$		
(a)(ii)	$\frac{38}{60}, \frac{19}{30}, 0.6333, 63\%$		

TWO (b)(i)		$\frac{1}{4} \times \frac{1}{4} + \frac{1}{4} \times \frac{1}{4} = \frac{1}{8}, \frac{2}{16}$ $\text{or } 0.0625 + 0.0625 = 0.125$ $2 \times 0.0625 = 0.125$ $\frac{2}{4} \times \frac{1}{4} = \frac{1}{8} \text{ or } \frac{1}{2} \times \frac{1}{4} = \frac{1}{8} \text{ is RAW}$	
(b)(ii)		<p>Total probability = $\frac{13}{16}$ or 0.8125</p>	<p>Expected number of Turns out of 80 with a score</p> <p>Of at least 40 is $\frac{13}{16} \times 80 = 65$</p>

Question sufficiency (Same for each question.)

a = 1A

am = M

ame = E

aa = 2A

aam = M

aame = E

ae = M

me = M

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Determine probabilities. 1 A + 2 A (3 a) or better	Solve probability problems using theoretical methods. 3 a + 2 m OR 3 m	Explore probability situations to solve problems. 3 a + 2 m + 1 e OR 3 m + 1 e

Lower case **a**, **m**, **e** may be used throughout the paper to indicate contributing evidence for overall grades for questions. The circled upper case **A**, **M** and **E** grades shown at the end of each full question are used to make the final judgement.

The following Mathematics-specific marking conventions may also have been used when marking this paper:

- Errors are circled.
- Omissions are indicated by a caret (^).
- **NS** may have been used when there was not sufficient evidence to award a grade.
- **CON** may have been used to indicate 'consistency' where an answer is obtained using a prior, but incorrect answer and **NC** if the answer is not consistent with wrong working.
- **CAO** is used when the 'correct answer only' is given and the assessment schedule indicates that more evidence was required.
- **#** may have been used when a correct answer is obtained but then further (unnecessary) working results in an incorrect final answer being offered.
- **RAWW** indicates right answer, wrong working.
- **R** for 'rounding error' and **PR** for 'premature rounding' resulting in a significant round-off error in the answer (if the question required evidence for rounding).
- **U** for incorrect or omitted units (if the question required evidence for units).
- **MEI** may have been used to indicate where a minor error has been made and ignored.